IN THE CLAIMS

Please amend Claims 22-23, 26, and 38 as set forth below.

Claims 1-20 (canceled).

21. (Previously presented) A magnetic disk storage apparatus comprising:

a magnetic head having a read head and a write head;

the read head having a lower shield, an upper shield, and a read element formed between the lower shield and upper shield;

the write head having a main pole, one or more auxiliary poles, and coils located on both sides of the main pole; and

a magnetic medium having a soft magnetic underlayer and a magnetic recording layer formed above the soft magnetic underlayer,

wherein a magnetic field from the main pole enters into the auxiliary pole through the magnetic recording layer and the soft magnetic underlayer,

the coils are arranged so as to magnetize the main pole in accordance with an electrical current flowing in the coils, and

the coils generate different respective magneto-motive forces.

22. (Currently amended) A magnetic disk storage apparatus comprising:

a magnetic head having a read head and a write head;

the read head having a lower shield, an upper shield, and a read element formed between the lower shield and ~~an~~ upper shield;

the write head having a main pole, one or more auxiliary poles located only on one side of the main pole, and coils located on both sides of the main pole; and

a magnetic medium having a soft magnetic underlayer and a magnetic recording layer formed above the soft magnetic underlayer,

wherein a magnetic field from the main pole enters into the auxiliary pole through the magnetic recording layer and the soft magnetic underlayer,

the coils are arranged so as to magnetize the main pole in accordance with an electrical current flowing in the coils, and

a current flowing in the coil located on ~~a~~ the side ~~pf~~ of the main pole having no auxiliary pole is greater than a

current flowing in the coil located on ~~a~~ the side of the main pole having an auxiliary pole.

23. (Currently amended) A magnetic disk storage apparatus comprising:

a magnetic head having a read head and a write head;

the read head having a lower shield, an upper shield, and a read element formed between the lower shield and upper shield;

the write head having a main pole, one or more auxiliary poles located only on one side of the main pole, and coils located on both sides of the main pole; and

a magnetic medium having a soft magnetic underlayer and a magnetic recording layer formed above the soft magnetic underlayer,

wherein a magnetic field from the main pole enters into the auxiliary pole through the magnetic recording layer and the soft magnetic underlayer,

the coils are arranged to as to magnetize the main pole in accordance with an electrical current flowing in the coils, and

a number of windings of the coil located on ~~a~~ the side of the main pole having no auxiliary pole is greater than

that of the coil located on ~~a~~ the side of the main pole having an auxiliary pole.

24. (Previously presented) A magnetic disk storage apparatus according to claim 21,

wherein the main pole is formed between the read element and the auxiliary pole.

25. (Previously presented) A magnetic disk storage apparatus according to claim 24,

wherein a distance between the main pole and the auxiliary pole is smaller than a distance between the main pole and the upper shield.

26. (Currently amended) A magnetic disk storage apparatus according to claim 24,

wherein a product (μa/D1) of an inverse of the distance D1 and a permeability μa of the auxiliary pole is greater than a product (μs/D2) of an inverse of the distance D2 and a permeability ~~of~~ μs of the upper shield,

wherein D1 is the spacing between the main pole and the auxiliary pole, and

wherein D2 is the spacing between the main pole and the upper shield.

27. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein said auxiliary pole is located only on one of said sides of said main pole so that the magneto-motive force of said coil located on a side of the main pole having no auxiliary pole is greater than that of said coil located on a side of the main pole having said auxiliary pole.

28. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein the ratio of the magneto-motive force of one of said coils to that of the other of said coils located on said sides of said main pole is 1.5 or more.

29. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein the ratio of the magneto-motive force of one of said coils to that of the other of said coils located on said sides of said main pole is 2.5 or less.

30. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein said auxiliary pole is located only on one side of said main pole so that a current flowing in said coil located on a side of the main pole having no auxiliary pole is greater than a current flowing in said coil located on a side of the main pole having said auxiliary pole.

31. (Previously presented) A magnetic disk storage apparatus as claimed in claim 30, wherein a ratio of the applied current value of one of said coils to that of the other of said coils located on said sides of said main pole is 1.5 or more.

32. (Previously presented) A magnetic disk storage apparatus as claimed in claim 30, wherein a ratio of applied current value of one of said coils to that of the other of said coils located on said sides of said main pole is 2.5 or less.

33. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein said auxiliary pole is located only on one of said sides of said main pole and the

number of windings of said coil located on a side of the main pole having no auxiliary pole is greater than that of said coil located on a side of the main pole having said auxiliary pole.

34. (Previously presented) A magnetic disk storage apparatus as claimed in claim 33, wherein a ratio of the number of windings of one of said coils to that of the other of said coils located on said sides of said main pole is 1.5 or more.

35. (Previously presented) A magnetic disk storage apparatus as claimed in claim 33, wherein a ratio of the number of windings of one of said coils to that of the other of said coils located on said sides of said main pole is 2.5 or less.

36. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21,

wherein each of the coils is composed of a looped thin-film conductor.

37. (Previously presented) A magnetic disk storage apparatus as claimed in claim 21, wherein a distance between said main pole and said auxiliary pole is no greater than twice as long as the thickness of each coil located between said main pole and said auxiliary pole.

38. (Currently amended) A magnetic disk storage apparatus as claimed in claim 21,

wherein the opposed area of one auxiliary pole to a floating surface of the magnetic head ~~being~~ is made smaller than the opposed area of another auxiliary pole to said floating surface, and

wherein the magneto-motive force of said coil located on the side of said auxiliary pole having a smaller area is greater than that of said coil located on the side of said another auxiliary pole having a larger area.

39. (Previously presented) A magnetic disk storage apparatus as claimed in claim 38, wherein the current applied to said coil having said smaller area is greater than the current applied to said coil having said larger area.

40. (Previously presented) A magnetic disk storage apparatus as claimed in claim 38, wherein the number of windings located on said auxiliary pole having said smaller area is greater than that located on said auxiliary pole having said larger area.

41. (Previously presented) A magnetic disk storage apparatus as claimed in claim 38,

wherein said read head is located on the side of said auxiliary pole having said smaller area.